This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS

-1- (Currently Amended)

A mesostructured crystalline hydrated alumina composition which is microporous and consists essentially of boehmite with atomically ordered walls forming mesopores and exhibiting at least one low angle x-ray diffraction line corresponding to a lattice spacing of at least 2.0 nm and multiple wide angle x-ray diffraction lines with CuKα radiation wherein λ is 0.1541 nm corresponding to an ordered lattice comprised of oxygen atoms and hydroxide groups with aluminum in interstitial positions within the lattice, wherein the surface area is at least 200 m^2/g; and wherein the pore volume is at least 0.40 cm^3/g, wherein the boehmite is formed by mixing an amorphous hydrated alumina and an organic modifier which forms the mesostructure and then heating the mixture so that the boehmite is completely formed and then removing water and the organic modifier to provide the composition.

Claim 2 (Cancelled)

-3- (Currently Amended)

A mesostructured crystalline hydrated alumina composite composition with mesopores containing an organic modifier in the mesopores of the alumina wherein the alumina composition consists essentially of boehmite with atomically ordered walls forming mesopores and exhibits at least one low angle x-ray diffraction line corresponding to a lattice spacing of at least 2.0 nm and multiple wide angle x-ray diffraction lines corresponding to an ordered lattice comprised of oxygen atoms and hydroxide groups with aluminum in interstitial positions within the lattice, wherein the boehmite is formed by mixing an amorphous hydrated alumina and the organic modifier which forms the mesostructure and then heating the mixture so that the boehmite is completely formed to provide the composition.

-4- (Previously Amended)

The composition of Claim 3 wherein the organic modifier is a non-ionic surfactant.

The composition of Claim 4 wherein the surfactant is selected from the group consisting of a polyethylene oxide block co-polymer, an alkylene amine; an alkylene polyamine, a polypropylene oxide amine, a polypropylene oxide polyamine and mixtures thereof.

-6- (Previously Amended)

The composition of any one of Claims 3, 4 or 5 wherein the hydrated alumina component is boehmite.

-7- (Currently Amended)

A mesostructured crystalline transition alumina composition comprising gamma alumina and:

wherein the composition exhibits at least one low angle x-ray diffraction line corresponding to a lattice spacing of at least 2.0 nm and derived from a boehmite with atomically ordered framework walls forming mesopores multiple wide angle x-ray diffraction lines with CuKα radiation wherein λ is 0.1541 nm corresponding to an ordered oxygen atom lattice with aluminum in interstitial positions within the lattice, wherein the surface area is at least 200 m^2/g; and wherein the pore volume is at least 0.40 cm^3/g, wherein the boehmite is formed by mixing an amorphous hydrated alumina with an organic modifier which forms the mesostructure, heating the solution so that the boehmite is completely formed, then removing water and the organic modifier from the mesostructured boehmite, and then calcining the mesostructured boehmite to form the gamma alumina composition.

The mesostructured transition alumina of Claim 7 wherein the transition alumina consists essentially of gamma alumina.

Claims 9 - 26 (Cancelled)